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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,474	11/14/2008	Robert Talbot	1022702-000317	8786
21839	7590	10/17/2011	EXAMINER	
BUCHANAN, INGERSOLL & ROONEY PC POST OFFICE BOX 1404 ALEXANDRIA, VA 22313-1404				WEST, THEODORE R
ART UNIT		PAPER NUMBER		
			1628	
			NOTIFICATION DATE	DELIVERY MODE
			10/17/2011	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com  
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<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/588,474	TALBOT ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Theodore R. West	1628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) Responsive to communication(s) filed on 16 August 2011.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_\_; the restriction requirement and election have been incorporated into this action.
- 4) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 5) Claim(s) 21-33 is/are pending in the application.
  - 5a) Of the above claim(s) 27 is/are withdrawn from consideration.
- 6) Claim(s) \_\_\_\_\_ is/are allowed.
- 7) Claim(s) 21-26 and 28-33 is/are rejected.
- 8) Claim(s) \_\_\_\_\_ is/are objected to.
- 9) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 10) The specification is objected to by the Examiner.
- 11) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.
 

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | Paper No(s)/Mail Date. _____ .                                    |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/14/2008</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application |
|   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

Claims 21-33 are pending in the application. Claim 27 is withdrawn as being drawn to a nonelected species. Claims 21-26 and 28-33 are rejected for the reasons set forth below.

### ***Election/Restrictions***

Applicant's election with traverse of the following species for initial examination in the reply filed on August 16, 2011 is acknowledged: polyacrylate terminated with vinylphosphonic acid (which may be referred to as "VPA-capped" polyacrylate) as the elected biopenertrant. The traversal is on the ground(s) that the requirement for a species election presupposes that no generic claim is allowable and, because no prior art was cited in the requirement for a species election mailed on June 16, 2011, the requirement should be withdrawn. This is not found persuasive because the generic claims are not allowable in view of the prior art discussed in detail below.

### **The requirement is still deemed proper and is therefore made FINAL.**

Claim 27 is withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the election requirement in the reply filed on August 16, 2011. During the course of examination, prior art was identified that relates to certain nonelected species (e.g., VDPA end-capped polyacrylate). In the interest of advancing prosecution of the application, that art has been applied to the claims as discussed below. The prior art search, however, has not been unnecessarily extended

to cover all nonelected species. For similar reasons, the requirement for a species election has not been withdrawn. See MPEP § 803.02.

***Claim Objections***

**Claims 23 and 27 are objected to because of the following informalities.**

In claim 23, “formats” should be --formate--.

In claim 27, the phrase “both as hereinbefore defined” should be deleted from the claim. Claims in dependent form are construed to include all the limitations of the claims from which they depend, and therefore this phrase is not necessary. See MPEP § 608.01(n).

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

**Claims 28-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

The claims recite various concentration limitations (e.g., “50% by weight”), but it is unclear how those concentrations are related or proportional to other components of the compositions. For example, in claim 28, it is unclear whether a VPA polymer concentration of 50% is relative to the total weight of the dry solids of the composition,

relative only to the amount of THP, or relative to the amount of polyacrylate polymer. In addition, the phrase “based upon active solids and a 1 to 74% THP salt formulation” is indefinite because it is not clear how the concentration of THP is related to the concentration of polymer (e.g., a 50% concentration of polymer and a 74% concentration of THP is more than 100%, which is not physically possible). Appropriate correction or clarification is required. In any case, the examiner has presumed for the purposes of conducting a search of the prior art that the recited concentration ranges refer to the concentration of each component based on the total dry weight of the solids.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**Claims 21-26 and 28-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over WIPO Patent Publication No. 99/33345 by Jones et al. in view of European Patent Publication No. 861,846 A2 by Davis et al.**

Jones et al. (cited in applicant's IDS) discloses synergistic compositions of a salt of tetrakis(hydroxymethyl)phosphonium ("THP") and a polymeric biopenetrant (see Abstract). The THP salt is preferably sulphate, although other salt forms may be used, including phosphite, bromide, fluoride, chloride, phosphate, carbonate, acetate, formate, citrate, borate, and silicate (p. 2, ll. 12-15). The polymeric biopenetrant may be a homopolymer of acrylic acid, i.e., polyacrylate (p. 6, ll. 10-11). Particularly preferred biopenetrants are phosphonated polyacrylates (p. 6, ll. 16-17). The synergistic biopenetrant polymer is not usually present in a greater weight concentration than the THP, and it is typically less than 5% by weight (p. 9, ll. 1-10; see also, claim 13). The compositions are useful in methods of treating water systems contaminated with bacteria, fungi, etc. (p. 16, ll. 9-28; see also, claim 16).

The differences between the prior art and the claims at issue are that Jones et al. does not specifically disclose VPA- or VDPA-capped polymers.

Davis et al. (cited in applicant's IDS), however, discloses polymers of vinyl phosphonic acid ("VPA") (p. 6, "Example 1") and vinylidene diphosphonic acid ("VDPA") (p. 6, "Example 2"), both of which may be used to terminate or end-cap polyacrylate (p. 7, "Example 5;" see also, p. 2, ll. 30-43). Such polymers may be combined with biocides, such as THP (p. 4, l. 50).

One would have been motivated to use VPA- or VDPA-terminated polyacrylate in the compositions and methods of Jones et al. as a matter of engineering convenience. Where these are the polymers that are readily available to the skilled artisan, the skilled artisan would naturally be motivated to use them. One would have had a reasonable expectation of success because the prior art specifically teaches that they may be combined with biocides, such as THP (see Davis et al. at p. 4, l. 50). Furthermore, because the prior art teaches that the combination of THP with a wide range of polymers is synergistic (see, e.g., Jones et al. at pp. 3-8; especially p. 7, ll. 17-23), one would reasonably expect combinations of THP and VPA/VDPA-terminated polymers would also be synergistic. Even though the cited references do not provide explicit instructions to substitute these specific polymers, such a teaching is not necessary to render such substitutions obvious. See MPEP § 2144.06(II) ("Substituting Equivalents Known for The Same Purpose").

**Claims 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jones et al. in view of Davis et al. and WIPO Patent Publication No. 00/21892 by Odell et al.**

Jones et al. (cited in applicant's IDS) discloses compositions of a salt of tetrakis(hydroxymethyl)phosphonium ("THP") and a polymeric biopenetrant (see Abstract). The polymeric biopenetrant may be a homopolymer of acrylic acid, i.e., polyacrylate (p. 6, ll. 10-11). Particularly preferred biopenetrants are phosphonated polyacrylates (p. 6, ll. 16-17).

The differences between the prior art and the claims at issue are that Jones et al. does not specifically disclose (1) VPA- or VDPA-capped polymers or (2) methods of treating metal (e.g., iron) sulphide scale in water systems.

Davis et al. (cited in applicant's IDS), however, discloses polymers of vinyl phosphonic acid ("VPA") (p. 6, "Example 1") and vinylidene diphosphonic acid ("VDPA") (p. 6, "Example 2"), both of which may be used to terminate or end-cap polyacrylate (p. 7, "Example 5;" see also, p. 2, ll. 30-43). Such polymers may be combined with biocides, such as THP (p. 4, l. 50). They are useful in methods of treating metal scale formation in water systems (p. 2, ll. 1-9).

Odell et al. (cited in applicant's IDS) discloses compositions comprising THP salts that are useful in methods of dissolving ferrous (i.e., iron) sulphide scale (see Abstract). The THP may be combined with phosphonates compounds and acrylate polymers (p. 3, ll. 21-30).

One would have been motivated to use VPA- or VDPA-terminated polyacrylate in the compositions and methods of Jones et al. as a matter of engineering convenience. Where these are the polymers that are readily available to the skilled artisan, the skilled artisan would naturally be motivated to use them. One would have had a reasonable

expectation of success because the prior art specifically teaches that they may be combined with biocides, such as THP (see Davis et al. at p. 4, l. 50). Even though the cited references do not provide explicit instructions to substitute these specific polymers, such a teaching is not necessary to render such substitutions obvious. See MPEP § 2144.06(II) (“Substituting Equivalents Known for The Same Purpose”).

One would have been further motivated to use such compositions in the treatment of iron sulphide scale in order to expand their economic value. Where a composition appears to be useful for a new use, i.e., a use not taught in Jones et al., the skilled artisan would nevertheless be motivated to use it in such methods rather than invent an entirely new composition. One would have had a reasonable expectation of success because the prior art specifically teaches that THP-containing compositions are useful in the treatment of iron sulfide scale.

#### ***Correspondence Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Theodore R. West whose telephone number is (571)270-5993. The examiner can normally be reached on Monday to Friday, 10:30 am to 7:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brandon J. Fetterolf can be reached on (571)272-2919. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/T. R. W./  
Examiner, Art Unit 1628

/Anish Gupta/  
Primary Examiner, Art Unit 1654